NAVAL SAFETY COMMAND
SAFETY AWARENESS DISPATCH
SA 24-27

If You Ride a Motorcycle, Read This

There are nearly **30 times more deaths on motorcycles than in cars per mile traveled**. *—Ponder that stat for a second. Mile for mile, for every person killed in a car accident, 30 people die in motorcycle accidents. Wow!* How do you avoid becoming (*or causing*) one of the 30?

Our data analytics staff tallied the motorcycle stats for Fiscal Year (FY) 2020-2024 (as of 17 Sep; FY 24 isn't over yet) and found that the leading cause of Navy and Marine Corps motorcycle accidents was multi-vehicle crashes in which the OTHER driver was at fault—not the motorcycle rider who had the mishap. These "no improper operation" mishaps were also the #2 cause of motorcycle fatalities. (*The #1 cause of motorcycle deaths was excessive speed, so please don't do that. We've hit that topic in many other dispatches*).

Of the 812 reported motorcycle mishaps in the past five years, 132 were fatal. FY 24 has been a tragic year for our riders, with 33 fatalities to date. Sometimes, a rider does everything correctly but is hurt by another vehicle that fails to yield or simply doesn't see them. Many of the accidents happen when drivers don't see a motorcycle and turn unexpectedly in front of a rider. The drivers of the cars or trucks weren't necessarily bad drivers—they truly DID NOT SEE the motorcycles approaching. This dispatch delves into the "Why" motorists don't always see motorcycles and offers recommendations for drivers and riders alike.

Why didn't they see them? "Perceptual issues" (also called "**inattentional blindness**" by some researchers) can result in a driver not "seeing" a motorcycle. Their brain does not register it, even though it is right in front of their eyes.

Our eyes don't "see" as much as we think they do. They aren't cameras. They are biological devices with limitations. There are blurry spots and blind spots, and the image gathered is actually upside down in the brain. Your eyes scan everything and constantly send pictures to the brain for analysis, but the brain can only "see" things it understands. To save processing power and attention, the human brain uses a "visual shorthand" to keep from overwhelming itself. When things happen faster than the eye-brain system can "see", we start to not perceive things. Motorcycles fall into the list of things we may not perceive on the road. No matter how great our eyesight is, we can't escape these brain lapses.

Think about it: a motorcycle approaching head-on occupies only a tiny part of a driver's vision. On a clear, sunny day, at one hundred yards, you can completely hide a motorcycle with a pencil held up at arm's length. At 60 miles per hour, a motorcycle will travel that football field distance in 3.2 seconds. For example, when you're driving to work early in the morning, you might not expect to see a motorcycle, bicycle, or pedestrian during certain portions of the commute. With the brain's shortcuts, **our brains may actually ignore a motorcycle**, bicycle, or pedestrian right in front of us.

Here is a real motorcycle mishap involving a truck turning left at an intersection that's one of a thousand excellent examples to alert ALL drivers (*especially motorcycle riders*) about these human "perceptual issues." A service member was headed home on his motorcycle in the afternoon. He wore all the required Personal Protection Equipment (PPE), including a helmet, gloves, motorcycle jacket with reflective striping, denim pants and boots. He was traveling southbound, approaching an intersection, and the traffic light was green, so he could continue straight through (see Figure 1).

A pickup truck going the other way approached the same intersection, intending to turn left. The driver did not have a green arrow to make the turn but did have a solid green light, allowing an "unprotected" left turn (yielding

to oncoming traffic). The driver had a clear sight distance of the approaching traffic, but he did not see the motorcycle and tried to make that left-hand turn.

The motorcycle hit the truck's front right side, throwing the servicemember from the bike. First responders found him unconscious and severely injured despite all the PPE. The civilian driver was unhurt. The pickup truck driver was cited for failure to yield the right-of-way. The motorcycle rider did everything correctly, but the other driver was either distracted or unable to "see" him.

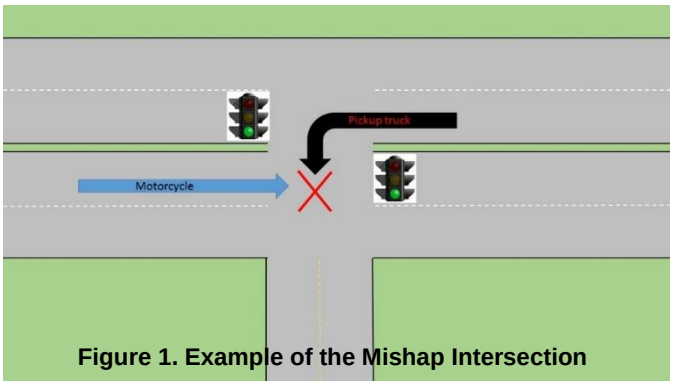

Figure 1. Example of the Mishap Intersection

Besides the brain processing limits we've already discussed; other visual illusions can affect a driver's ability to see motorcycles.

-Illusion #1: Because motorcycles are the minority on the road, the brain doesn't "expect" to see them. The brain perceives the things that are most common and easy to spot (*like cars or trucks*), but the brain can ignore things that don't match, such as a motorcycle (*or bicycle, pedestrian, or animal*). **The unexpected image that the brain receives of a motorcycle is simply not added to the mental image the brain creates.** *—It is essential for all motorists to consciously scan for all hazards, not just the "expected" hazards.*

-Illusion #2: In a quick scan of the roadway, the brain replaces the blank spaces with recent memories or images from previous experiences. This illusion can result in a motorcycle being "lost" in the blank spaces between the images the brain rapidly processes when a driver quickly scans the road. **Because no motorcycle is perceived, it isn't added to the mental image and the driver's brain never "sees" it**. *—It is crucial to not just casually scan the road for hazards but also to do so with conscious purpose.*

-Illusion #3: The brain senses that the size of an object correlates to distance. Drivers' brains tend to perceive a larger object as closer than it is. If an object is smaller, we tend to perceive it as being farther away. Because **motorcycles are small compared to automobiles,** even IF the brain overcomes all the issues we've described and adds the motorcycle to the mental image, **the brain erroneously interprets it as being farther away than it is.** When drivers act on this wrong perception, they set up accidents like the left-turn one above. *—Every driver should remember that "objects may be closer than they appear."*

These brain limitations happen to everyone – including motorcycle riders. What does this science all mean to you and me? Be alert and look intentionally for motorcycles and not just cars or trucks. Understanding **why** we don't easily see motorcycles (*and other stuff, like pedestrians, animals, bicycles, etc.)* can help us all be aware take extra steps to spot them and avoid an accident.

Key Takeaways (*#1-4 are for Riders; #5 is for All of Us*)

1. **They can't see you, and they don't even know it.** Not every driver on the road is looking for you, *and VERY FEW even KNOW about these visual illusions.*

2**. Act to be seen and heard.** Wear bright colors or use flashing lights that help draw attention. Grab drivers' attention through sound, like your horn or engine noise. Sound is processed differently by the brain than vision.

3. **Don't trust that they see you.** Like one of the Firearms Safety Rules, "Treat every driver like they don't see you." Always be guarded and look for an escape route in case an unsafe situation develops.

4**. Ride like you are part of the problem** (*because you are*). If you drive 20mph faster than everyone else or weave through traffic, then you increase the risk of other drivers not seeing you. Your life is in your hands, because the other folks may not even know you're there.

5**. For vehicle drivers, scan for the unexpected.** "Look twice," is a good saying, but may only re-confirm the wrong sight picture. Look purposefully for the motorcycles. It can help your brain overcome the limitations.

And remember, "Let's be careful out there."